

Customer No.: 31561
Application No.: 10/707,686
Docket No.: 11844-US-PA

REMARKS

Present Status of Application

Claims 1-22 remain pending in the application. The Advisory Office Action dated January 06, 2006, declined the entry of the amendments filed after the Final Office Action. The Final Office Action mailed September 23, 2005, rejected claims 1-3, 5-7 and 9 under U.S.C. 102(e) as being anticipated by Huang et al. (US Patent No. 6,538,321). Claims 1-3, 5-7 and 9 were rejected under U.S.C. 102(e) as being anticipated by Combs et al. (US Patent No. 6,734,552). Claims 1, 5-7 and 9 were rejected under U.S.C. 102(e) as being anticipated by Yamada et al. (US Patent No. 6,476,502). Claims 1-3, 5-12, 14-15 and 18-22 were rejected under U.S.C. 102(e) as being anticipated by Ference et al. (US Patent No. 6,265,771). Claims 4 and 13 were rejected under U.S.C. 103(a) as being unpatentable over Ference et al. in view of Nishioka et al. (JP-02000195994A). Claim 4 was rejected under U.S.C. 103(a) as being unpatentable over Combs et al. in view of Nishioka et al. (JP-02000195994A). Claims 10 and 16-17 were rejected under U.S.C. 103(a) as being unpatentable over Hoffman et al. (US Patent No. 6,737,750) in view of Combs et al..

Claims 1-2 and 10-11 have been amended. Applicant believes that these changes do not introduce new matter and reconsideration of those claims is respectfully requested. In view of the above amendments and the following discussions, a notice of allowance is

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respectfully solicited.

Discussion for 35 U.S.C. 102 and 103 rejections

Claims 1-3, 5-7 and 9 were rejected under U.S.C. 102(e) as being anticipated by Huang et al. (US Patent No. 6,538,321). Claims 1-3, 5-7 and 9 were rejected under U.S.C. 102(e) as being anticipated by Combs et al. (US Patent No. 6,734,552). Claims 1, 5-7 and 9 were rejected under U.S.C. 102(e) as being anticipated by Yamada et al. (US Patent No. 6,476,502). Claims 1-3, 5-12, 14-15 and 18-22 were rejected under U.S.C. 102(e) as being anticipated by Ference et al. (US Patent No. 6,265,771).

Claims 1 and 10 have been amended by merge limitations of claims 2 and 11 respectively to provide more descriptions according to the present invention, while claims 2 and 11 have been amended accordingly.

Applicant respectfully asserts that the structure of claim 1 or 10 is patentably distinct from the prior art references. Especially, the structure comprises "a plurality of standoff components, disposed over the heat sink and in a peripheral area of the chip package structure, wherein the standoff components have a spherical shape".

Regarding the 102 rejections of independent claim 1 and/or 10:

Huang merely discloses a heat sink 10 with a collapse structure including a body 11 having a surface 12 and an extending portion 13 (as shown in Figure 5 and 8).

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The Office Action considered Huang's heat sink 10 and body 11 being respectively comparable to the heat sink and the standoff components of this invention.

As discussed above, based on Huang's figures 5 and 8 and the related contexts, it is obvious that body 11 is not equivalent or comparable to "the standoff components have a spherical shape" of this invention.

Combs discloses the package including a substrate 100, a heat sink 110, an encapsulant 140 and a die 130. The heat sink 110 has a raised portion 112 in the center, as shown in Figure 3 and Figure 7.

Similarly, the Office Action considered Combs's heat sink 110 as equivalence to the heat sink of this invention.

However, as shown in Combs's Figure 3 and 7, Comb's portion 112 is disposed in the center of the heat sink 110 and is clearly not comparable to the "standoff components, disposed over the heat sink and in a peripheral area of the chip package structure" of this invention.

Similarly, Yamada fails to disclose each and every limitation recited in amended claim 1, especially "the standoff components".

Ference discloses mounting a heat sink 26 disposed on chip 16. From Ference's Figure 2, the heat sink 26 includes a plurality of strip fins over the top surface of the heat sink.

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Clearly, the strip fins of heat sink 26 disclosed by Ference is different and not comparable as the standoff components of this invention.

Therefore, Ference fails to disclose all the limitations as recited in amended independent claim 1 or 10.

Accordingly, the independent claim 1 or 10 clearly distinguishes the present invention over the cited reference Huang, Combs, Yamada or Ference.

Dependent claims 2-3, 5-9, 11-12, 14-15 and 18-22 are submitted to be patentably distinguishable over the cited references for at least the same reasons as independent claim 1 or 10, from which these claims respectively depend, as well as for the additional features that these claims recite.

Withdrawn of these rejections under 35 USC 102(e) is respectfully requested.

Claims 4 and 13 were rejected under U.S.C. 103(a) as being unpatentable over Ference et al. in view of Nishioka et al. (JP-02000195994A). Claim 4 was rejected under U.S.C. 103(a) as being unpatentable over Combs et al. in view of Nishioka et al. (JP-02000195994A). Claims 10 and 16-17 were rejected under U.S.C. 103(a) as being unpatentable over Hoffman et al. (US Patent No. 6,737,750) in view of Combs et al..

As for dependent claims 4 and 13, Applicants respectfully submit that claims 4 and 13 patently define over the reference Ference or Combs for at least the reasons discussed above, and should be allowed.

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For claims 10 and 16-17:

The Office Action considered Hoffman substantially discloses the present invention except the heat sink over the chipset having a surface area greater than the chipset and being unconnected to the carrier; and the top surface being lower than the top surface of the encapsulant material. The Office Action further relied on Combs for teaching the lacking features.

Hoffman discloses a semiconductor package including heat spreaders thermally coupled between two stacked dies and heat spreaders 33/35 (in Fig. 13) are connected to the dies 12/16 and connected to the substrate 10. Even considering modifying Hoffman's package by attaching the heat sink of Combs, the combination fails to arrive at the structure of this invention, because neither Hoffman nor Combs discloses the standoff components as recited in independent claim 10.

Accordingly, claims depending from claim 10 therefore are not anticipated by the references Hoffman and Combs, either alone or in combination, for the reasons noted above, as well as for the additional features recited therein.

Reconsideration and withdrawal of these rejections under 35 USC 103(a) are respectfully requested.

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CONCLUSION

In view of the foregoing, it is believed that all pending claims are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

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Respectfully submitted,


Belinda Lee

Registration No.: 46,863

Jianq Chyun Intellectual Property Office
7th Floor-1, No. 100
Roosevelt Road, Section 2
Taipei, 100
Taiwan
Tel: 011-886-2-2369-2800
Fax: 011-886-2-2369-7233
Email: belinda@jicgroup.com.tw
Usa@jicgroup.com.tw